

10. Bearing materials

10.1 Comparison of national standards of rolling bearing steel

The dimension series of rolling bearings as mechanical elements have been standardized internationally, and the material to be used for them specified in ISO 683/17 (heat treatment, alloy, and free cutting steels / Part 17 ball and roller bearing steels). However, materials are also standardized according to standards of individual countries and, in some cases, makers are even making their own modifications.

As internationalization of products incorporating bearings and references to the standards of these kinds of steels are increasing nowadays, applicable standards are compared and their features described for some representative bearing steels.

Table 1

JIS G 4805	ASTM	Other major national standards
SUJ1	—	—
—	51100	—
SUJ2	—	—
—	A 295-89 52100	—
—	—	100Cr6 (DIN)
—	—	100C6 (NF)
—	—	535A99 (BS)
SUJ3	—	—
—	A 485-03 Grade 1	—
—	A 485-03 Grade 2	—
SUJ4	—	—
SUJ5	—	—
—	A 485-03 Grade 3	—

Notes *1: $P \leq 0.025$, $S \leq 0.025$

Remarks ASTM: Standard of American Society

JIS G 4052 G 4053	ASTM A 534-90	C
SCr420H	—	0.17 to 0.23
—	5120H	0.17 to 0.23
SCM420H	—	0.17 to 0.23
—	4118H	0.17 to 0.23
SNCM220H	—	0.17 to 0.23
—	8620H	0.17 to 0.23
SNCM420H	—	0.17 to 0.23
—	4320H	0.17 to 0.23
SNCM815	—	0.12 to 0.18
—	9310H	0.07 to 0.13

Notes *2: $P \leq 0.030$, $S \leq 0.030$ *3: $P \leq 0.025$, $S \leq 0.015$